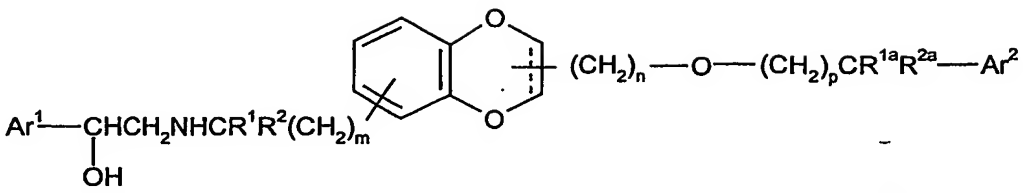
CLAIMS

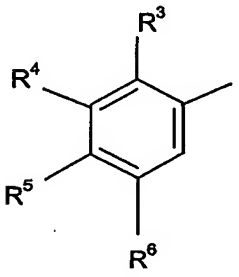
1. A compound of formual (I):



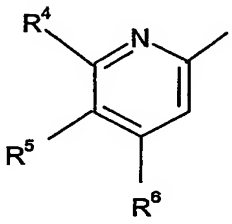
(I)

or a salt, solvate, or physiologically functional derivative thereof, wherein:

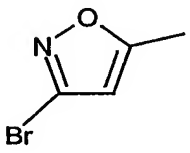
Ar^1 is a group selected from



(a)

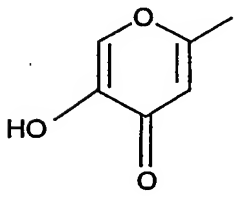


(b)



(c)

and



(d)

wherein R^4 represents hydrogen, halogen, $-(CH_2)_qOR^7$, $-NR^7C(O)R^8$, $-NR^7SO_2R^8$, $-SO_2NR^7R^8$, $-NR^7R^8$, $-OC(O)R^9$ or $OC(O)NR^7R^8$,
and R^3 represents hydrogen, halogen or C_{1-4} alkyl;

or R^4 represents $-NHR^{10}$ and R^3 and $-NHR^{10}$ together form a 5- or 6- membered heterocyclic ring;

R^5 represents hydrogen, halogen, $-OR^7$ or $-NR^7R^8$;

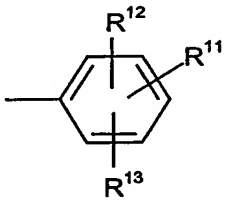
R^6 represents hydrogen, halogen, haloC_{1-4}alkyl, $-OR^7$, $-NR^7R^8$, $-OC(O)R^9$ or $OC(O)NR^7R^8$;

R^7 and R^8 each independently represents hydrogen or C_{1-4} alkyl, or in the groups $-NR^7R^8$, $-SO_2NR^7R^8$ and $-OC(O)NR^7R^8$, R^7 and R^8 independently represent hydrogen or C_{1-4} alkyl or together with the nitrogen atom to which they are attached form a 5-, 6- or 7- membered nitrogen-containing ring,

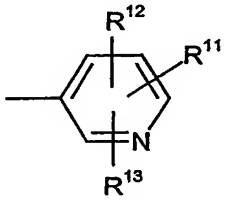
R^9 represents an aryl (eg phenyl or naphthyl) group which may be unsubstituted or substituted by one or more substituents selected from halogen, C_{1-4} alkyl, hydroxy, C_{1-4} alkoxy or halo C_{1-4} alkyl; and

q is zero or an integer from 1 to 4;

Ar^2 is a group:



or



wherein

R^{11} is selected from hydrogen, C_{1-6}alkyl, hydroxy, C_{1-6} alkoxy, cyano, nitro, halo, C_{1-6}haloalkyl, XCO_2R^{16}, $-XC(O)NR^{15}R^{16}$, $-XNR^{14}C(O)R^{15}$, $-XNR^{14}C(O)NR^{15}R^{16}$, $-XNR^{14}C(O)NC(O)NR^{15}R^{16}$, $-XNR^{14}SO_2R^{15}$, $-XSO_2NR^{17}R^{18}$, XSR^{14}, $XSOR^{14}$, XSO_2R^{14}, $-XNR^{15}R^{16}$, $-XNR^{14}C(O)OR^{15}$, or $XNR^{14}SO_2NR^{15}R^{16}$,
or R^{11} is selected from -X-aryl, -X-hetaryl, or -X-(aryloxy), each optionally substituted by 1 or 2 groups independently selected from hydroxy, C_{1-6}alkoxy, halo, C_{1-6}alkyl, C_{1-6}haloalkyl, cyano, nitro, $CONR^{15}R^{16}$,

$-NR^{14}C(O)R^{15}$, SR^{14}, SOR^{14}, $-SO_2R^{14}$, $-SO_2NR^{17}R^{18}$, $-CO_2R^{16}$, $-NR^{15}R^{16}$, or hetaryl optionally substituted by 1 or 2 groups independently selected from hydroxy, C_{1-6}alkoxy, halo, C_{1-6}alkyl, or C_{1-6}haloalkyl;

X is $-(CH_2)_r-$ or C_{2-6} alkenylene;

r is an integer from 0 to 6, preferably 0 to 4;

R^{14} and R^{15} are independently selected from hydrogen, C_{1-6}alkyl, C_{3-7}cycloalkyl, aryl, hetaryl, hetaryl(C_{1-6}alkyl)- and aryl(C_{1-6}alkyl)- and R^{14} and R^{15} are each independently optionally substituted by 1 or 2 groups independently selected from halo, C_{1-6}alkyl, C_{3-7} cycloalkyl, C_{1-6} alkoxy, C_{1-6}haloalkyl, $-NHC(O)(C_{1-6}$alkyl), $-SO_2(C_{1-6}$alkyl), $-SO_2$(aryl), $-CO_2H$, and $-CO_2(C_{1-4}$alkyl), $-NH_2$, $-NH(C_{1-6}$alkyl), aryl(C_{1-6}alkyl)-, aryl(C_{2-6}alkenyl)-, aryl(C_{2-6}alkynyl)-, hetaryl(C_{1-6}alkyl)-, $-NHSO_2$aryl, -NH(hetarylC_{1-6}alkyl), $-NHSO_2$hetaryl, $-NHSO_2(C_{1-6}$alkyl), -NHC(O)aryl, or -NHC(O)hetaryl:

or R^{14} and R^{15}, together with the nitrogen atom to which they are bonded, form a 5-, 6- or 7-membered nitrogen – containing ring;

or where R^{11} is $-XNR^{14}C(O)NR^{15}R^{16}$, R^{14} and R^{15} may, together with the -NC(O)N- portion of the group R^1 to which they are bonded, form a saturated or unsaturated ring, preferably a 5-, 6-, or 7- membered ring, for example an imidazolidine ring, such as imidazolidine-2,4-dione;

or where R^{11} is $-XNR^{14}C(O)OR^{15}$, R^{14} and R^{15} may, together with the -NC(O)O- portion of the group R^{11} to which they are bonded, form a saturated or unsaturated ring, preferably a 5-, 6-, or 7- membered ring, for example an oxazolidine ring, such as oxazolidine-2,4-dione;

R^{16} is selected from hydrogen, C_{1-6}alkyl and C_{3-7} cycloalkyl;

or where R^{11} is $-XC(O)NR^{15}R^{16}$ or $-XNR^{14}C(O)NR^{15}R^{16}$, R^{15} and R^{16} may, together with the nitrogen to which they are bonded, form a 5-, 6-, or 7- membered nitrogen containing ring;

R^{17} and R^{18} are independently selected from hydrogen, C_{1-6}alkyl, C_{3-7}cycloalkyl, aryl, hetaryl, hetaryl(C_{1-6}alkyl)- and aryl(C_{1-6}alkyl)-, or R^{17} and R^{18}, together with the nitrogen to which they are bonded, form a 5-, 6-, or 7- membered nitrogen containing ring;

and R^{17} and R^{18} are each optionally substituted by one or two groups independently selected from halo, C_{1-6}alkyl, and C_{3-7}cycloalkyl, C_{1-6}haloalkyl;

R^{12} is selected from hydrogen, hydroxy, C_{1-6}alkyl, C_{1-6}alkoxy, halo, aryl, aryl(C_{1-6}alkyl)-, C_{1-6}haloalkoxy, and C_{1-6}haloalkyl;

R^{13} is selected from hydrogen, hydroxy, C_{1-6}alkyl, C_{1-6}alkoxy, halo, aryl, aryl(C_{1-6}alkyl)-, C_{1-6}haloalkoxy, and C_{1-6}haloalkyl;

R^1 and R^2 are independently selected from hydrogen and C_{1-4} alkyl with the proviso that the total number of carbon atoms in R^1 and R^2 is not more than 4;

one of R^{1a} and R^{2a} is selected from hydrogen and C_{1-4}alkyl, and the other of R^{1a} and R^{2a} represents C_{1-4}alkyl;

m is an integer of from 1 to 3;
n is an integer of from 1 to 4; and
p is zero or an integer of from 1 to 3;

and ---- represents a single or double bond.

2. A compound of formula (I) as defined in claim 1, or a salt, solvate or physiologically functional derivative thereof, except that:
R^{1a} and R^{2a} each represent hydrogen;
and in the group Ar^1, either:
R^4 represents halogen, $-(CH_2)_qOR^7$, $-NR^7C(O)R^8$, $-NR^7SO_2R^8$, $-SO_2NR^7R^8$, $-NR^7R^8$, $-OC(O)R^9$ or $OC(O)NR^7R^8$, and R^3 represents hydrogen or C_{1-4} alkyl;
or:
R^4 represents $-NHR^{10}$ and R^3 and $-NHR^{10}$ together form a 5- or 6- membered heterocyclic ring;

3. A compound of formula (I) according to either claim 1 or claim 2 wherein the group Ar^1 is selected from groups (a) and (b) as defined in claim 1.

4. A compound of formula (I) according to any of claims 1 to 3 wherein, in the group Ar^2, R^{11} is selected from hydrogen, C_{1-4}alkyl, hydroxy, halo, $-NR^{14}C(O)NR^{15}R^{16}$,

$-NR^{14}SO_2R^{15}$ and $XSO_2NR^{17}R^{18}$ wherein R^{14} to R^{18} are as defined in claim 1.

5. A compound of formula (I) according to any of claims 1 to 3 wherein, in the group Ar^2, R^{11} is selected from cyano, $-CONR^{15}R^{16}$, SR^{14}, SOR^{14} and SO_2R^{14}, wherein R^{14}, R^{15} and R^{16} are as defined in claim 1.

6. A compound of formula (I) according to any of claims 1 to 5 wherein R^{12} and R^{13} each represent hydrogen.

7. A compound of formula (I) according to any of claims 1 to 3 wherein R^{11} represents hydrogen and R^{12} and R^{13} each represent halogen or C_{1-6}alkyl.

8. A compund of formula (I) according to any of claims 1 to 7 wherein R^1 and R^2 are both hydrogen.

9. A compound of formula (I) according to any of claims 1 to 8 wherein each of m and n is independently 1 or 2, and p is zero or 1.

10. A compound of formula (I) selected from:
4-((1*R*)-2-{[2-((3*R*)-3-{[(2,6-Dichlorobenzyl)oxy]methyl}-2,3-dihydro-1,4-benzodioxin-6-yl)ethyl]amino}-1-hydroxyethyl)-2-(hydroxymethyl)phenol;
4-{(1*R*)-2-[(2-{(3*R*)-3-[(Benzyloxy)methyl]-2,3-dihydro-1,4-benzodioxin-6-yl}ethyl)amino]-1-hydroxyethyl}-2-(hydroxymethyl)phenol;
4-{(1*R*)-2-[(2-{(3*S*)-3-[(Benzyloxy)methyl]-2,3-dihydro-1,4-benzodioxin-6-yl}ethyl)amino]-1-hydroxyethyl}-2-(hydroxymethyl)phenol;
2-(Hydroxymethyl)-4-{(1*R*)-1-hydroxy-2-[(2-{(3*R*)-3-[(pyridin-3-ylmethoxy)methyl]-2,3-dihydro-1,4-benzodioxin-6-yl}ethyl)amino]ethyl}phenol;
4-((1*R*)-2-{[2-((3*R*)-3-{[(6-Chloropyridin-3-yl)methoxy]methyl}-2,3-dihydro-1,4-benzodioxin-6-yl)ethyl]amino}-1-hydroxyethyl)-2-(hydroxymethyl)phenol;
4-((1R)-2-{[2-((3R)-3-{[(2,6-Dichloropyridin-3-yl)methoxy]methyl}-2,3-dihydro-1,4-benzodioxin-6-yl)ethyl]amino}-1-hydroxyethyl)-2-(hydroxymethyl)phenol;
4-{(1*R*)-2-[(2-{2-[(Benzyloxy)methyl]-2,3-dihydro-1,4-benzodioxin-6-yl}ethyl)amino]-1-hydroxyethyl}-2-(hydroxymethyl)phenol;
4-((1*R*)-2-{[2-((3*R*)-3-{[(5-Bromopyridin-3-yl)methoxy]methyl}-2,3-dihydro-1,4-benzodioxin-6-yl)ethyl]amino}-1-hydroxyethyl)-2-(hydroxymethyl)phenol;

3-[({(2*R*)-7-[2-({(2*R*)-2-Hydroxy-2-[4-hydroxy-3-(hydroxymethyl)phenyl]ethyl}amino)ethyl]-2,3-dihydro-1,4-benzodioxin-2-yl}methoxy)methyl]benzonitrile;

3-[({(2*R*)-7-[2-({(2*R*)-2-Hydroxy-2-[4-hydroxy-3-(hydroxymethyl)phenyl]ethyl}amino)ethyl]-2,3-dihydro-1,4-benzodioxin-2-yl}methoxy)methyl]benzamide;

4-[(1*R*)-2-({2-[(3*R*)-3-({[3-(Cyclopentylthio)benzyl]oxy}methyl)-2,3-dihydro-1,4-benzodioxin-6-yl]ethyl}amino)-1-hydroxyethyl]-2-(hydroxymethyl)phenol;

4-[(1*R*)-2-({2-[(3*R*)-3-({[3-(Cyclopentylsulfonyl)benzyl]oxy}methyl)-2,3-dihydro-1,4-benzodioxin-6-yl]ethyl}amino)-1-hydroxyethyl]-2-(hydroxymethyl)phenol;

2-(Hydroxymethyl)-4-{(1*R*)-1-hydroxy-2-[(2-{(3*R*)-3-[({5-[4-(methylsulfinyl)phenyl]pyridin-3-yl}methoxy)methyl]-2,3-dihydro-1,4-benzodioxin-6-yl}ethyl)amino]ethyl}phenol;

N-{3-[({(2*R*)-7-[2-({(2*R*)-2-Hydroxy-2-[4-hydroxy-3-(hydroxymethyl)phenyl]ethyl}amino)ethyl]-2,3-dihydro-1,4-benzodioxin-2-yl}methoxy)methyl]phenyl}urea;

4-((1*R*)-2-{[2-((3*R*)-3-{[(4-Chlorobenzyl)oxy]methyl}-2,3-dihydro-1,4-benzodioxin-6-yl)ethyl]amino}-1-hydroxyethyl)-2-(hydroxymethyl)phenol;

4-((1*R*)-2-{[2-((3*R*)-3-{[(4-Fluorobenzyl)oxy]methyl}-2,3-dihydro-1,4-benzodioxin-6-yl)ethyl]amino}-1-hydroxyethyl)-2-(hydroxymethyl)phenol;

4-((1*R*)-2-{[2-((3*R*)-3-{[(3,5-Dimethylbenzyl)oxy]methyl}-2,3-dihydro-1,4-benzodioxin-6-yl)ethyl]amino}-1-hydroxyethyl)-2-(hydroxymethyl)phenol;

2-(Hydroxymethyl)-4-{(1*R*)-1-hydroxy-2-[(2-{(3*R*)-3-[(1-phenylethoxy)methyl]-2,3-dihydro-1,4-benzodioxin-6-yl}ethyl)amino]ethyl}phenol;

2-(Hydroxymethyl)-4-[(1*R*)-1-hydroxy-2-({2-[(3*R*)-3-({[3-(methylsulfonyl)benzyl]oxy}methyl)-2,3-dihydro-1,4-benzodioxin-6-yl]ethyl}amino)ethyl]phenol;

4-((1*R*)-2-{[2-((3*R*)-3-{[3-(2,6-Dichlorophenyl)propoxy]methyl}-2,3-dihydro-1,4-benzodioxin-6-yl)ethyl]amino}-1-hydroxyethyl)-2-(hydroxymethyl)phenol;

3-[({(2*R*)-7-[2-({(2*R*)-2-Hydroxy-2-[4-hydroxy-3-(hydroxymethyl)phenyl]ethyl}amino)ethyl]-2,3-dihydro-1,4-benzodioxin-2-yl}methoxy)methyl]benzenesulfonamide;

6-{2-[(2-{(3*R*)-3-[(Benzyloxy)methyl]-2,3-dihydro-1,4-benzodioxin-6-yl}ethyl)amino]-1-hydroxyethyl}-2-(hydroxymethyl)pyridin-3-ol;

N-(5-{(1*R*)-2-[(2-{(3*R*)-3-[(Benzyloxy)methyl]-2,3-dihydro-1,4-benzodioxin-6-yl}ethyl)amino]-1-hydroxyethyl}-2-hydroxyphenyl)methanesulfonamide;

4-{(1*R*)-2-[(2-{(3*R*)-3-[(Benzyloxy)methyl]-2,3-dihydro-1,4-benzodioxin-6-yl}ethyl)amino]-1-hydroxyethyl}-2-fluorophenol;

4-{(1*R*)-2-[(2-{(3*R*)-3-[(Benzyloxy)methyl]-2,3-dihydro-1,4-benzodioxin-6-yl}ethyl)amino]-1-hydroxyethyl}-3-methylphenol;

(1*R*)-1-(4-Amino-3,5-dichlorophenyl)-2-[(2-{(3*R*)-3-[(benzyloxy)methyl]-2,3-dihydro-1,4-benzodioxin-6-yl}ethyl)amino]ethanol;

5-{(1*R*)-2-[(2-{(3*R*)-3-[(Benzyloxy)methyl]-2,3-dihydro-1,4-benzodioxin-6-yl}ethyl)amino]-1-hydroxyethyl}-2-hydroxyphenylformamide;

or a salt, solvate or physiologically functional derivative thereof.

11. A method for the prophylaxis or treatment of a clinical condition in a mammal, such as a human, for which a selective β_2-adrenoreceptor agonist is indicated, which comprises administration of a therapeutically effective amount of a compound of formula (I) according to any of claims 1 to 10, or a pharmaceutically acceptable salt, solvate, or physiologically functional derivative thereof.

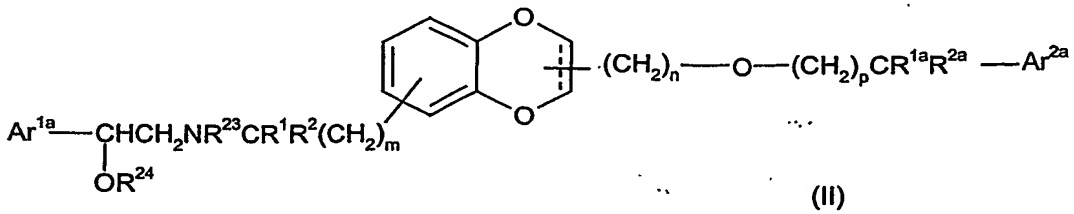
12. A compound of formula (I) according to any of claims 1 to 10, or a pharmaceutically acceptable salt, solvate, or physiologically functional derivative thereof for use in medical therapy.

13. A pharmaceutical formulation comprising a compound of formula (I) according to any of claims 1 to 10, or a pharmaceutically acceptable salt, solvate, or physiologically functional derivative thereof, and a pharmaceutically acceptable carrier or excipient, and optionally one or more other therapeutic ingredients.

14. The use of a compound of formula (I) according to any of claims 1 to 10, or a pharmaceutically acceptable salt, solvate, or physiologically functional derivative thereof in the manufacture of a medicament for the prophylaxis or treatment of a clinical condition for which a selective β_2-adrenoreceptor agonist is indicated.

15. A process for the preparation of a compound of formula (I), according to any of claims 1 to 10, or a salt, solvate, or physiologically functional derivative thereof, which comprises:

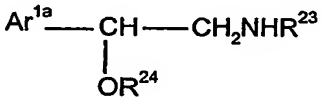
(a) deprotection of a protected intermediate, for example of formula (II).



(II)

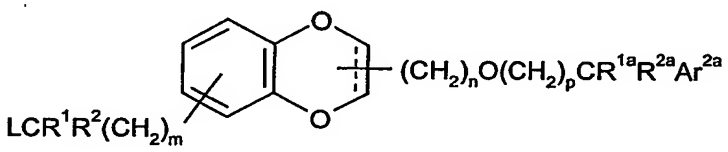
or a salt or solvate thereof, wherein R^1, R^2, R^{1a}, R^{2a}, m, n, p and ---- are as defined for the compound of formula (I), Ar^{1a} represents an optionally protected form of Ar^1; Ar^{2a} represents an optionally protected form of Ar^2 and R^{23} and R^{24} are each independently either hydrogen or a protecting group, provided that the compound of formula (II) contains at least one protecting group;

(b) alkylation of an amine of formula



(VIII)

wherein Ar^{1a}, R^{23} and R^{24} are as defined for formula (II) with a compound of formula (XV):



(XV)

wherein ----, Ar^2, R^1, R^2, R^{1a}, R^{2a}, m, n and p are as defined for the compound of formula (II) and L is a leaving group as defined for formula (IX);

followed by the following steps in any order:

(i) optional removal of any protecting groups;

(ii) optional separation of an enantiomer from a mixture of enantiomers;

(iii) optional conversion of the product to a corresponding salt, solvate, or physiologically functional derivative thereof.